

CLAIMS

We claim:

1. A mobile phone comprising:

a body;

a movable cover arranged on the mobile phone for movement with respect to the body; and

a piezoelectric actuator connected to the body and drivingly engaging the cover for moving the cover with respect to the body.

2. The mobile phone according to claim 1, wherein the mobile phone is a telephone handset.

3. The mobile phone according to claim 1, wherein the cover includes an elongated connecting member fixed on the cover, an output of the piezoelectric actuator engaging the elongated connecting member for directly driving the cover.

4. The mobile phone according to claim 3, wherein the output of the piezoelectric actuator is a finger tip of the actuator.

5. The mobile phone according to claim 3, wherein the output of the piezoelectric actuator drivingly engages the elongated connecting member on a first side of the connecting member, and wherein a counter-bearing arrangement is located on the body in engagement with a second side of the connecting member opposite the first side to counter-balance a pushing force from the piezoelectric actuator on the connecting member.

6. The mobile phone according to claim 5, wherein the counter-bearing arrangement comprises first and second rollers spaced from one another along the length of the connecting member and engaging the second side thereof.

7. The mobile phone according to claim 3, wherein the elongated connecting member is a connecting rod.

8. The mobile phone according to claim 3, further comprising first and second stoppers provided at respective ends of the elongated connecting member for engaging respective limit switches provided on the body to limit the movement of the cover on the body.

9. The mobile phone according to claim 1, wherein the cover is in sliding engagement with the body.

10. The mobile phone according to claim 9, wherein the piezoelectric actuator slides the cover linearly with regard to the body.

11. A portable electronic product comprising:
a body;
a movable cover arranged on the portable electronic product for movement with respect to the body; and
a piezoelectric actuator connected to the body and drivingly engaging the cover for moving the cover with respect to the body.

12. The portable electronic product according to claim 11, wherein the cover includes an elongated connecting member fixed on the cover, an output of the piezoelectric actuator engaging the elongated connecting member for directly driving the cover.

13. The portable electronic product according to claim 12, wherein the output of the piezoelectric actuator is a finger tip of the actuator.

14. The portable electronic product according to claim 12, wherein the output of the piezoelectric actuator drivingly engages the elongated connecting member on a first side of the connecting member, and wherein a counter-bearing arrangement is located on the body in engagement with a second side of the connecting member opposite the first side to counter-balance a pushing force from the piezoelectric actuator on the connecting member.

15. The portable electronic product according to claim 14, wherein the counter-bearing arrangement comprises first and second rollers spaced from one another along the length of the connecting member and engaging the second side thereof.

16. The portable electronic product according to claim 12, wherein the elongated connecting member is a connecting rod.

17. The portable electronic product according to claim 12, wherein first and second stoppers are provided at respective ends of the elongated connecting member for engaging respective limit switches provided on the body to limit the movement of the cover on the body.

18. The portable electronic product according to claim 11, wherein the cover is in sliding engagement with the body.
19. The portable electronic product according to claim 18, wherein the piezoelectric actuator slides the cover linearly with respect to the body.
20. An automatic sliding mechanism comprising:
a movable first member;
a second member on which the movable first member is slidably arranged;
an elongated connecting member fixed on the first member;
a piezoelectric actuator connected to the second member, an output of the piezoelectric actuator drivingly engaging the elongated connecting member for directly driving the first member to slide the first member with respect to the second member.
21. The automatic sliding mechanism according to claim 20, further comprising a counter-bearing arrangement on the second member adjacent the

connecting member to counter-balance a pushing force from the piezoelectric actuator on the connecting member.

22. The automatic sliding mechanism according to claim 21, wherein the counter-bearing arrangement comprises first and second rollers spaced from one another along the length of the connecting member on a side thereof opposite a side thereof drivingly engaged by the output of the piezoelectric actuator.

23. The automatic sliding mechanism according to claim 20, wherein the elongated connecting member is a connecting rod.

24. The automatic sliding mechanism according to claim 20, further comprising first and second stoppers provided at respective ends of the elongated connecting member to engage respective limit switches provided on the second member to limit the sliding movement of the first member on the second member.

25. The automatic sliding mechanism according to claim 20, wherein the first and second members are components of a portable electronic component.

26. The automatic sliding mechanism according to claim 25, wherein the first and second members are a front cover and a body of a mobile phone.

27. The automatic sliding mechanism according to claim 26, wherein the piezoelectric actuator slides the front cover linearly with respect to the body of the mobile phone.

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